

### REMARKS

In the Office Action, claims 1, 4 and 7-9 are rejected under 35 U.S.C. §103(a) as being unpatentable over Woodmansee in view of Yang and Eppich, claims 5, 6 and 10 are rejected under 35 U.S.C. §103(a) as being unpatentable over Woodmansee in view of Yang and Eppich and further in view of Reichstein, and claims 2, 3 and 11-14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Woodmansee in view of Yang and Eppich and Reichstein and Chou.

The gist of the instant invention is to provide a nano-imprint system comprising a mold in which an electrostatic plate capacitor is embedded, a detection device coupled to the electrostatic plate capacitor for detection of deformation of the mold during an imprinting process and an external monitoring device coupled to the detection device for receiving, recording and displaying the result of detection and selectively issuing a warning or automatically shutting down the system based on the detection result. As pointed out in the specification, **precision of molds is a key indication for quality of the imprinted products in nano-imprinting techniques**. The instant invention is made to address this issue and **to monitor mold deformation in nano-imprinting**.

Woodmansee teaches a touch sensing apparatus for sensing touch between a compression mold and a workpiece located in the compression mold. The apparatus may include at least one touch sensor pad positionable to signal touch between the mold closure and the workpiece. It should be noted that the objective of Woodmansee is to **sense the touch between a compression mold and a workpiece** which is completely different from **monitoring the deformation of the mold in nano-imprinting**.

Yang teaches a capacitive semiconductor pressure sensor including a non-single-crystal-silicon-based substrate, a conductive movable polysilicon diaphragm, a polysilicon supporter positioned on the non-single-crystal-silicon-based substrate for fixing two ends of the polysilicon diaphragm and forming a sealed cavity between the polysilicon diaphragm and the non-single-crystal-silicon-based substrate, a stationary electrode positioned on the non-single-crystal-silicon-based substrate and below the polysilicon diaphragm, and a thin film transistor control circuit positioned on the non-single-crystal-based substrate and electrically connected to the plate capacitor. **The teaching of Yang is simply a capacitive semiconductor pressure sensor and nowhere has Yang taught or suggested monitoring of mold deformation in nano-imprinting.**


Eppich et al. teach a device for monitoring force and pressure in injection molding machines, with at least one sensor for measuring the deformation of a machine part that is deformed by the closing or injection pressure. **It is important to note that through out the teaching of Eppich et al., it is only limited to monitoring force and pressure in the machine part that is manufactured instead of monitoring the mold.** In addition, the concept or application in nano-imprinting is completely unexpected from Eppich et al.

From the above comparisons between the cited prior arts and the instant invention, it is evident that the **concept of monitoring mold deformation in nano-imprint** is neither disclosed nor anticipated in any of the cited prior arts. As a result, it would not be logical for a person skilled in the art to combine Woodmansee, Yang and Eppich to reach the instant invention because **neither mold deformation monitoring nor nano-**

**imprinting are taught or suggested by any of the cited prior arts.** The apparatus as claimed in claim 1 is absolutely novel and non-obvious in view of the cited prior arts. Applicants respectfully submit that the rejection under 35 U.S.C. §103(a) should be withdrawn, and claim 1 should be allowable. By virtue of dependency, claims 2-10 should also be allowable. Similarly, the method claim 11 is patentable because it specifically claims a mold deformation monitoring method in nano-imprinting which is not in the scope of teaching of any of the cited prior arts. By virtue of dependency, claims 12-14 should also be allowable.

From the foregoing discussion, it is clear that the instant invention differs from the cited prior arts. The physical difference results in different effects and is not obvious. Claims 1-14 are in full condition for allowance. The specification has been amended to correct a few editorial and grammatical errors. Prompt and favorable reconsideration of the application is respectfully solicited.

Respectfully submitted,



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